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MEDIA, FISH AND SUSTAINABILITY: a Paper on Sustainable Development and the Canadian News Media

by

Michael Keating

February 1994

Unedited Working Paper for Discussion

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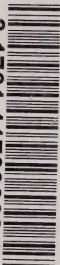
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Ph: (613) 992-7189 Fax: (613) 992-7385

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l'environnement et l'économie (TRNEE)**

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Ottawa, Ontario, K1N 7B7
Tél: (613) 992-7189 Fax: (613) 992-7385

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PREFACE

The Education Task Force of the National Round Table on the Environment and the Economy commissioned this report by Michael Keating on the disappearance of the northern cod, and more particularly on the media coverage of this issue, to help illustrate the concept of sustainable development to national news editors. Mr Keating is an independent consultant and former environmental reporter for *The Globe and Mail*.

This paper was produced in response to a need identified in a series of outreach sessions hosted by the Education Task Force. Participants from across the country advised the Task Force that the public could benefit from work with the media around the concept of sustainable development. As well, editorial board visits by National Round Table and Education Task Force members demonstrated that concrete examples of how sustainable development fits into every day news issues would be useful.

The disappearance of the northern cod was chosen as the issue because it is a moving and tangible example of unsustainable development. It incorporates all aspects of sustainable development including the environmental, economic, social and cultural considerations.

This report is targeted at national news editors. They are the ones who carry responsibility for organizing coverage, and overseeing editing of national stories. Consequently, as far as encouraging the media to take a more holistic, sustainable development approach to news coverage, they occupy a linchpin position.

The report looks at how the cod issue was handled by the media, and how it might have been handled if coverage had been dealt with through the perspective of sustainable development. The intention is not to lecture the media on what it should be doing; it is to offer an alternative that involves looking at issues through a different lens -- the lens being sustainable development.

The Education Task Force hopes that this report will spark interest in shifting the focus away from confrontational reporting to a more holistic approach. As well, this report will form the basis of future outreach among the media.

Leone Pippard
President and Executive Director
Canadian Ecology Advocates and
Chair, NRTEE Task Force on Education



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INTRODUCTION

Environment stories have traditionally been relatively straightforward. There were bad guys in black hats, pumping out the toxic chemicals, and there were good guys in green hats trying to expose the bad guys. The role of the media was to tell the story of conflict between good and bad. The reader would figure out what to do about the situation. End of story.

In recent years, the environment picture has become more complex with the introduction of the term, sustainable development. The phrase is being used by both environmentalists and business people. What's going on? Did the black hats cave in, or did the green hats sell out? Do the media know? The answer is, "no, no and not yet."

Traditional environment reporting is already hard enough because it requires the journalist to understand and interpret complex sciences, such as atmospheric physics, organic chemistry and risk assessment. Reporting sustainable development requires people to also understand the relationship between the environment and the economy and what this means for the society. The emerging jargon of environment-economy includes such terminology as "full cost accounting" and "pricing the environment."

Sustainable development is about maintaining a healthy environment that can sustain a healthy economy and thus permit a healthy society. In order to reduce environmental damage, we will have to change some of the ways we make decisions, do business and use products. You can't go out and pick up a simple formula for shifting society to sustainable development. No one has yet created a modern industrial society that is not running down the environment. However, a number of Canadians are trying to pioneer ways of helping our society to understand the sometimes difficult choices ahead and to reach decisions. Often they work together in groups that are called multi-sectoral, because they include representatives from different parts of society, including government, business and environmental groups. The round tables on environment and economy at the national, provincial, territorial and municipal levels are examples of such groups.

These attempts at co-operation and consensus do not fit the simple mold of the polluter of the day story with its dramatic conflicts. The results are not always easy to report, because change is slow.

In order to cover sustainable development, it helps to learn from the lessons of unsustainable development in the past. There are plenty of case studies: over-cutting of forests, the use of chemicals that deplete the ozone layer, running down the farmland that feeds us and destruction of fisheries.

The collapse of a number of Atlantic fisheries, particularly the northern cod stock off Newfoundland, is one of the most dramatic examples. The fishery was sustainable for centuries as long as the harvest did not exceed nature's capacity to produce more fish. The crash of the cod fishery has triggered an economic crisis and this threatens the very stability of the society.

THE ENVIRONMENT AND THE ECONOMY

From beaver pelts to pulp and paper, Canada's economy has been based largely on natural resources—the environment. By the late 1980s, Canada was the world's second largest fish exporter in dollar value, the largest exporter of forest products, largest producer of newsprint, second-largest producer of wood pulp and third-largest producer of softwood lumber. Forestry and fishing employed more than 400,000 people. Other natural resource industries, such as mining, oil, gas and agriculture are also mainstays of the economy.

Natural resources built this country, but the history of that development has been marked by boom and bust. Over the past century, a number of fisheries in the Atlantic, Pacific, Great Lakes and elsewhere have collapsed because of overfishing, habitat destruction and the introduction of foreign species. The number of endangered wildlife species in Canada has increased 30 per cent in the past five years. Across the country, soil fertility is declining and must be maintained with expensive fertilizers. Despite major recent increases in reforestation, more land is still logged each year than grows into commercially productive forest.

Single-industry towns based on natural resources often risk economic decline, even closure. Forest products provide the economic base for almost 350 single industry communities. In Atlantic Canada, more than 1,000 communities are wholly or mostly dependent on fishing.

For more than a century the answer to each natural resource collapse was to simply exploit another resource. There were different species of fish to catch or game to shoot. There was always another forest to cut, just over the hill. More land could be opened up if the farms failed. If the wells, lakes and rivers got too polluted or over-used, people simply built a pipeline to a new water supply.

Now the limits are coming into view. We are forced to make sudden and major changes in the uses of chemicals because they have some unpredicted side effects, such as damaging the ozone layer or polluting fish.

Our fossil fuel based economy will have to deal with its emissions of greenhouse gases such as carbon dioxide. The federal commitment is to stop increases, and major international science and policy groups are calling for sharp reductions in current emissions.

Across the country, there are growing conflicts over the fate of remaining forests. The dispute over Clayquot Sound on Vancouver Island is just one example. A number of major fisheries are in trouble, and tens of thousands of people will be unable to work in the fishing industry for years. We are faced with an urgent need to find ways of producing food, creating energy, harvesting forests and generally running a modern society without running down the ecological base on which all this activity depends.

THE NORTHERN COD STORY

When John Cabot reached the shores of Newfoundland in 1497 he found the sea "swarming with fish which can be taken not only with net, but in baskets let down with a stone."

—*The State of Canada's Environment*— 1991

The last buffalo hunt is taking place on the ocean, because people have not yet realized that fish are wildlife.

—*Carl Safina, marine ecologist, National Audubon Society*

For the past 500 years the seas off Atlantic Canada have supported one of the world's richest commercial fisheries. The Grand Banks are part of the nation's history and culture. The fishery was sustainable for centuries because people were, in effect, skimming off the excess of what nature could produce. The very technology— long lines of baited hooks, inshore traps and small nets— limited the catch and resulted in little waste.

That began to change in the 1950s, when modern fishing technology and expanding markets for seafood combined to start increasing the catch. Powerful new boats equipped with radar, electronic navigation systems and sonar allowed crews to follow the fish right to their spawning grounds. At first the big trawlers came mainly from Europe, but Canadians, often with government subsidies, adopted the new technologies. Boats could now fish

year round, day and night, even in ice and at great depths. There was no place the fish could hide. Along with the desirable species such as cod and haddock, the nets also sweep up many non-commercial species or commercial fish so young they should be left in the ocean to reproduce. In Atlantic Canada, the trawler fleet was reported to have dragged its nets over 30,000 square kilometres or 15 per cent of Canada's continental shelf each year. Leslie Harris, of St. John's, said that less than one-third of the fish caught is actually landed and the rest is dumped. Dr. Harris, head of the Northern Cod Review Panel, called the modern fishing technology, "the greatest killing machine ever invented."

Not only was the fishing pressure being increased by Canadians, but more boats kept arriving from Europe, the United States, Latin America and Asia to scoop up the riches of the sea. Within about 20 years the highly efficient fleets decimated a resource that had been sustainable for centuries. The fishery was no longer being harvested on a renewable basis; it was being mined, and, like a mine, the ore played out. The new harvesting systems were supposed to bring wealth to this poor region of Canada. For a while they did, but once the resource was gone, the economic, social and ecological picture was bleaker than ever.

Reports of the annual catches show how quickly the northern cod disappeared when the new fishing equipment was used. Between 1850 and 1950, the northern cod catch only grew from about 200,000 to about 300,000 tonnes a year. With the introduction of the new trawlers, the annual catch shot up in a few years to a peak of 800,000 tonnes by the late 1960s. There was a sudden drop to around 200,000 tonnes a year by the mid 1970s, followed by a slight recovery, and the crash of the late 1980s. Dr. Harris, then president of Memorial University, wrote in his 1990 report that: "In the case of the northern cod, the madness in which we indulged in the decade 1964-1974 ought to stand as a great warning beacon that we should never forget."

Similar stories are being played out along the Atlantic coast. The Scotia-Fundy Groundfish Task Force said that the region's groundfish fleet had four times the fishing power necessary to take the permissible catch. (Off the Atlantic coast there are more than 40 species of groundfish, including cod, haddock and pollock, that feed at or near the ocean bottom.)

According to Dr. Harris, "we have brought four or five species currently to a state where they are facing the possibility of complete extinction," in parts of the Atlantic. These include northern cod, American plaice, yellow-tail flounder, redfish, and possibly the turbot. In recent years, fishing has been stopped or drastically curtailed for a number of species, including cod, haddock, salmon, capelin and silver hake. The haddock has almost disappeared, and the northern cod reduced to a remnant.

No one knows for certain when or even if the cod stock will recover to normal levels because in some years, young fish do not survive in the cold and hostile environment of the north Atlantic.

The future shape of the fishery is at stake. By the late 1980s, more than 120,000 people had jobs catching, handling or processing fish in Atlantic Canada. They worked on 20,000 boats and in 900 fish processing plants and helped to support 1,300 communities. The catch included more than 1.1 million tonnes of fish and shellfish. Commercial fishing was worth \$2 billion to the Atlantic coast economy, according to the 1991 report on Canada's environment. Cod alone accounted for only about 10 per cent of the weight but about 28 per cent of the value of the total catch.

Since 1989, the federal fisheries department has been announcing dramatic reductions in fish quotas, and in July 1992 a two year moratorium was imposed on fishing the remaining northern cod. Closing the northern cod fishery idled about 25,000 workers and virtually stopped the economy in 400 of 700 fishing communities in Newfoundland. In August 1993, most of the rest of Canada's east coast cod fishery and a number of other fisheries were closed, throwing about another 12,000 people out of work and onto government compensation.

Unemployed fishery workers in five provinces that depend on the Atlantic and Gulf of St. Lawrence fisheries are being offered up to \$406 a week to study and to train for jobs outside the fishery, costing the federal government hundreds of millions of dollars a year. "We've got a huge social experiment going on," said then Federal Fisheries Minister John Crosbie. Many people in Atlantic Canada are uncertain what jobs there will be in a region where unemployment figures are often in the double digits. Mr. Crosbie has said that the fishery will never again support 120,000 people. Former Newfoundland Premier Brian Peckford has even suggested that more people may have to emigrate from the island.

According to Dr. Harris, "we have brought close to extinction, of course, the society that was built upon the basis of these resources. In fact, it is probably finished in the way that we have known it, because out of the current crisis there will emerge, I am sure, a totally differently structured fishery." He suggests that many of the big deep-sea trawlers now tied up at piers will end up in scrap yards, and if the cod stock recovers it will be fished by smaller boats taking fewer fish at a time.

There is no single explanation for why one of the world's great natural resources was allowed to disappear right under our noses. An article in the prestigious *Science* magazine in April 1993, says that governments in many parts of the world have failed to protect fish stocks. It says that the possibility

of high profits to be made from exploiting fisheries leads to a gold rush mentality and governments, "ally themselves with special interest groups in order to facilitate the exploitation." Fishing quotas are often set too high, based on the catches of good years. When overfishing, natural fluctuations in productivity, or a combination of the two causes the catch to drop, governments typically prop up the fishery, assuring that over-harvesting will continue into the future.

There are some comparisons between the plight of the Atlantic fishers and many Canadian farmers. In both cases, there was the promise of high profits for people who invested in technologies that promised high productivity, at least in the short term, so both farmers and fishers bought expensive equipment. The fishers tried to pay for this equipment by catching more fish, and some people made a lot of money for a few years. In order to catch more fish, a number of people simply ignored quotas. One fisherman told the Standing Senate Committee on Fisheries that, "There is no shame in getting caught and paying a \$400 fine. It is almost a badge of honor."

Foreign overfishing is another important factor in the depletion of the fish stocks. Foreign vessels are allowed to catch "surplus" fish within Canada's 200 mile (370 kilometre) exclusive economic zone. Beyond that border there are no controls at all, and many boats have been landing as many fish as they can. No one really knows how many fish have been hauled from the sea. Canada's 1991 report on the environment says that 1.5 million tonnes of fish a year are reported caught in Canada's oceans, but this is below the true figure. Statistics are based on what is reported, and only some of that is confirmed by fisheries inspectors on vessels. In addition, large quantities of unmarketable fish are accidentally caught in the nets, forming what is known as the by-catch. These fish die in the process and are simply dumped at sea.

Around the world the situation is the same. Whether on the Grand Banks, the Mediterranean or the Andaman Sea, whether the fisher is Canadian, European or Thai, the pressure grows to catch more fish. The global commercial catch of fish and shellfish is close to 100 million tonnes per year, a fivefold increase during the past 40 years. The UN Food and Agriculture Organization says this is about the maximum amount it thinks the oceans can sustainably produce at a global level, but the demand keeps growing. There are now about 5.5 billion people in the world, and the population will grow to 6.25 billion by the year 2000 and 8 billion by the year 2020.

The story of overfishing is an analog for what is happening to natural resources in general. Logging continues to reduce the amount of wilderness in the country, and the forest industry is under growing pressure to reduce its environmental impact. Almost 90 per cent of logging in Canada is carried out

by clear-cutting, which means felling virtually every tree in a given area. Canada's best farmland is mostly in use, but large tracts are becoming less fertile due to erosion, loss of organic matter, salinization and other forms of soil degradation. About 20 per cent of Canada's farmland is deteriorating, and in the breadbasket of the Prairies, about 50 per cent of the organic matter has disappeared in just a century of farming. This reduces natural soil fertility, and requires farmers to add costly artificial nutrients. Across the country, soil degradation costs Canada more than \$1 billion a year. More prime farm land is being turned into subdivisions, shopping plazas, offices and industrial parks.

It is important to understand that there are alternative forms of development that will sustain the economy without destroying the environment. The challenge for the news media is to understand and explain the current situation and the choices that lie ahead.

WHAT IS SUSTAINABLE DEVELOPMENT?

"Since 1900, the world's population has multiplied more than three times. Its economy has grown twenty fold. The consumption of fossil fuels has grown by a factor of 30, and industrial production by a factor of 50. Most of that growth, about four-fifths of it, occurred since 1950. Much of it is unsustainable. Earth's basic life-supporting capital of forests, species and soils is being depleted and its fresh waters and oceans are being degraded at an accelerating rate."

—*Beyond Interdependence: The Meshing of the World's Economy and the Earth's Ecology*, by Jim MacNeill, Pieter Winsemius and Taizo Yakushiji.

The term sustainable development was popularized in the 1987 report of the UN-sponsored World Commission on Environment and Development, the Brundtland Commission, which defined it this way:

"Humanity has the ability to make development sustainable—to ensure that it meets needs of the present without compromising the ability of future generations to meet their own needs." The Brundtland Commission went on to say that: "At a minimum, sustainable development must not endanger the natural systems that support life on earth: the waters, the soils and the living beings."

Although this definition may appear to be stating the obvious, it represents a major shift from the traditional way that governments, corporations and the public at large have treated the environment. Almost all our economic development has been designed with little thought for its environmental impacts. We operate in a style that is called react and cure. In other words, the economic activity is carried out, and we then assess the environmental damage and try to clean it up. This is the old environmental agenda. It is still valid for dealing with problems that have been created, but it generally does not prevent new and expensive problems from arising.

Sustainable development tries to link the need for economic development and environmental protection by pointing out that the economy depends on a healthy environment. As a result, environmental protection needs to be seen not as frill or even something whose value is basically aesthetic, but rather as a necessary precondition for economic activity. Sustainable development makes it clear that economic development should continue, but says it needs to be in a form that does not degrade the environment. This means anticipating and preventing problems rather than reacting and trying to find a cure. It means living within ecological limits, and it means leaving the environment in a healthy state for future generations. This will require our society to adopt environmental stability as a core value. There is no simple formula as to how much environmental damage is tolerable. Each society or region will have to decide that for itself. One community may value wilderness more than another— for aesthetic or cultural reasons or because of its pragmatic value as a tourist destination. Sustainability will not be a steady state. The world will change as population grows, new technologies are invented, and peoples desires and goals change over time.

Modern lifestyles dictate that some natural resources will continue to be used and some pollution will be released. If development is to be sustainable in the future, it must not run down the resource or undermine the stability of the biosphere. Some forms of pollution have to be reduced, and, in the case of toxic substances that build up in the food chain, discharges must be virtually eliminated. Chemicals that destroy the ozone layer must be eliminated and greenhouse gas emissions, must be reduced. For renewable resources, sustainable development means not using them faster than they naturally regenerate. It is not always easy to tell when too much environmental pressure is building up. The sudden decline of the northern cod stock is a classic example of humans failing to accurately measure an impending collapse.

One of the major points agreed upon by the world's nations at the 1992 Earth Summit in Rio de Janeiro is called the precautionary principle. The Rio Declaration on Environment and Development said that to protect the

environment, nations shall use "the precautionary approach." It says that: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Carrying capacity

There is no simple answer to the question: how many people can the earth support on a long-term basis? It depends both on how many people there are and on how much impact each person has on the environment. This is determined by consumption patterns and technology. A society equipped with bulldozers and a desire for a great deal of material goods and energy will have a far greater environmental impact than a society equipped with shovels and simple material desires. About 30 industrialized nations with one-quarter of the world's population consume 92 per cent of the world's new cars, 85 per cent of metals, 85 per cent of chemicals, 81 per cent of paper and about 80 per cent of the commercially produced energy. A number of experts have estimated that one Canadian has the environmental impact of 40 to 50 people in a less industrialized country, such as India or China. The ecological footprint of Canadians is very large when compared with other peoples. We know the planet has a finite capacity to produce resources and purify our wastes. It is in our common interest to live within that carrying capacity, but with the world carved up into competing nations and companies it is not always easy to get agreement on how the goodies are shared.

The Tragedy of the Commons

The debate about how to share natural resources is an old one. In 1883, William Forster Lloyd noted that a grazing area could be used indefinitely as long as people did not try to graze too many cattle, damaging the pasture and reducing the number of animals that it could sustain. Mr. Lloyd, a British political economist, wrote that it was in the common interest of herdsmen to control the number of cattle, but not in their individual interest. As a result, each herdsman put as many cattle on the pasture as he could to maximize his personal gain. The net result was too many cattle for the carrying capacity of the pasture. Mr. Lloyd called this dominance of individual self interest over the common good the tragedy of the commons. The same story has been repeated many times. Off Newfoundland and many other coasts, fish are the prize, and too many people scoop up as many fish as they can carry without worrying about the future.

Environmental economics

A growing number of economists say that our current techniques for measuring the health of the economy are seriously flawed because they do not account for the value of a healthy environment. For half a century, mainstream economics has relied on Gross National Product (GNP) as the basic measure of the state of an economy. GNP measures changes in the production of goods and services, and net share dividend payments, interest, profits and rents in a nation. GNP will measure the loss of a building due to a fire, but not the loss of a forest or wetland, even though these natural assets are the underpinnings of our economy. Robert Repetto, chief economist at the World Resources Institute, has said that, "A country could exhaust its mineral resources, cut down its forests, pollute its aquifers and hunt its wildlife and fisheries to extinction without affecting its measured national income." Various experts have pointed out the irony in the fact that an oil spill contributes to GNP, because the cleanup results in the purchase of goods and employment of people. However the loss of natural resources is not recorded.

A healthy environment provides benefits that we generally take as free goods. These include clean air and water, food, recreation, and many other "environmental services." A forest or marsh provides economic value by conserving soil, releasing a steady flow of clean air and water, providing habitat for wildlife, creating and storing materials used in industry and medicine, and offering opportunities for recreation. However, these values are often not calculated when comparing the value of cutting the forest and selling it as lumber or paper, or filling in a wetland to build houses, factories or marinas.

Some people have tried to price the environment by adding up the cost of cleaning up contaminated sites, or repairing the damage acid rain does to cars and buildings. It is easy to get sums in the billions of dollars. Others have tried to calculate how much the using up of natural resources costs the economy in terms of losing opportunities for the future.

In the United States, Herman Daly and John Cobb, two well-known authors on environmental economics, argue that while the Gross National Product of the United States has risen in the past few decades, that is not an accurate indicator of the nation's health. They say that when you calculate such factors as the loss of farmland and wetlands, the costs of cleaning up pollution and health costs, the economy may not have improved at all. They say that, "By consuming our natural capital, we endanger our ability to sustain income." A number of economists are calling for something called "full cost accounting" to measure not only economic growth but changes in

the stock of natural resources and environmental services such as natural purification of water.

Accounting for nature is not an easy job. It requires a change in the way we calculate profit and measure progress. Many companies calculate profit on a quarterly basis, while political decisions are made in four-year framework. Nature operates on very long cycles. Cod may not reproduce successfully for four to six years, because of natural factors such as a drop in ocean temperatures. Trees can take half a century to reach harvesting age, while true old-growth forests only mature over several centuries. It takes between 100 and 400 years for a centimetre of soil to be formed naturally. It will take many decades, even centuries, for the atmosphere to return to a stable state once we reduce emissions of ozone depleting gases and greenhouse gases.

Agreeing on the idea

In the mid-1980s, sustainable development was promoted by the Brundtland Commission, which included a number of business executives and politicians. One member was Maurice Strong, the Canadian who has chaired both the 1972 and 1992 global environment and sustainable development conferences. The sustainable development concept was endorsed in Canada by The National Task Force on Environment and Economy, which included cabinet ministers, business leaders, environmentalists and academics. Their report said that Canada's, "long-term economic growth depends on a healthy environment." It said that, "environmental considerations cannot be an add-on, an afterthought. They must be made integral to economic policy making and planning, and a required element of any economic development proposal." Task force recommendations on how Canada could move toward sustainable development were adopted by the prime minister and premiers and a growing number of business leaders. The federal, provincial and territorial governments and a number of municipalities have created round tables to provide advice on how to integrate economic and environmental decision making. A number of government programs and businesses have stated that their goals include sustainable development.

Sustainable development has been written into the North American Free Trade Agreement as a legitimate objective for government policies. There is a Canada-Nova Scotia Sustainable Economic Development Agreement. Its aim is to create a business climate favoring sustainable development, develop public awareness of the issue and establish a track

record of decision-making on sustainable development. It uses economic development grants for sustainable development projects.

The 1992 United Nations Conference on Environment and Development in Rio de Janeiro was the world's largest meeting aimed at trying to get agreement on how to make global development more sustainable. The conference brought the signing of specific agreements on climate change, biodiversity and forests. It also produced Agenda 21, a 40 chapter blueprint on how to move toward sustainable development from now into the next century. Agenda 21, which was endorsed by the world's leaders, calls for national strategies, plans and policies for sustainable development. It says they must be developed with the broadest public participation.

COVERING SUSTAINABLE DEVELOPMENT

The roots of environment reporting go back decades to stories about the need to create parks and preserve wildlife species from over-hunting. Modern environment reporting started after the 1962 publication of *Silent Spring*, in which Rachel Carson wrote about the risks of toxic chemicals such as DDT. During the 1970s and 1980s, the environment beat grew to cover newly emerging issues, including acid rain, the greenhouse effect, the hole in the ozone layer, smog, logging, contaminants in drinking water, the impact of cars, garbage dumps and whether "green" products were doing anything for the environment. Many newspapers and a number of radio and television stations have an environment reporter, or at least someone who is supposed to keep an eye on these issues.

Sustainable development is generally seen as environment story because it emerged from that field. Most of the reporting on sustainable development deals with the environmental side but rarely analyzes the economic and social aspects of decisions in the same detail. Most economic reporting either ignores the environment or treats environmental considerations as bothersome impediments to economic development.

The vast majority of reporters go onto the environment beat completely unprepared for the complex science issues they must cover, so they have a hard enough time just getting this part of the story right. Too often, stories about how to reduce environmental impacts do not go beyond the level of household tips on how to cut household demand for water and make your composter produce compost instead of a soggy mass of decaying plant material. This level of coverage leaves the impression that we can save

the world with baking soda and vinegar. When there is a business-environment story it is rarely about substantive changes in corporate policy, but rather about how some company is cleaning up financially by selling a process to clean up pollution.

Covering sustainable development is not easy. It needs the skills of an environment reporter and a business reporter, with at least a look at social implications of decisions. This story does not fall easily into one beat or another. For the environment reporter it means learning more about economics, how business operates, how governments make economic decisions and how societies form their values. For the business reporter, it means learning about the environment and cultural values. For the social sciences reporter, it means understanding both environment and economics.

All journalists need to be able to explain the ecosystem concept. Put in its simplest terms, this means that every part of the ecosystem is interconnected to other parts, through the flows of air, water, energy and materials. It is because matter and energy move through air, water, land and life that chemicals which were supposed to “stay put” in one area turn up in food and drinking water somewhere else. The links are not just between components of the environment. The economy is based on and closely linked to the environment. Ecologically blind economic decisions can have dangerous consequences.

Understanding and explaining these links is important because the stakes are high and the public expects both a healthy economy and a healthy environment. People need clearer information on the choices they can make and what the likely impacts will be. They need regular tracking of how governments, business and other decision makers are doing in building environmental considerations into planning. The media need to explain what is known and suspected about the ecological limits to certain forms of economic development. Sustainable development reporting is not just a bad news story about constraints. It is also about the vast array of business opportunities for producing energy, transportation systems and many other goods and services in ways that have lower environmental impacts. As the environmental damage increases, the demands for sustainable alternatives will grow dramatically. The media can play a constructive role by providing critical analysis of various alternatives. Some of this means stories on new, environmentally-friendly technologies, such as wind power, solar-powered cars, low-toxicity chemicals, conservation and reusable products. Another aspect of the sustainable development story involves an analysis of the decision-making process. This means looking not only at specific decisions but at the values that people hold to see if they fit with the concept of long-term sustainability for this and future generations.

Robert Costanza, director of the Maryland International Institute for Ecological Economics, has written that: "The environment and economy are often mistakenly presented in the media as independent entities that must be traded off against each other. In fact, they are highly interconnected." Mr. Costanza added that people have to understand that the economic system is part of the larger ecological life support system, and that, "in the long run, a healthy economy can only exist in symbiosis with a healthy ecology." Writing in the newsletter of the Washington-based Society of Environmental Journalists, he said that journalists have a key role in pointing out cases in which short-term economic gain will lead to long-term problems. The media have a responsibility to help explain that there are economic alternatives that maintain the resource base and some economic revenues. The short-term revenues may not be as high as those gained from using up a resource, but they will last much longer.

COVERING THE NORTHERN COD STORY

The collapse of the northern cod fishery is a textbook case of unsustainable economic development. Excessive fishing has destroyed a major piece of the environment. In turn, that has destroyed part of the economy, and the result is severe problems for the fishing-based society.

This story was played out over a number of years. How did the media cover it, and how might they have treated it differently? According to Dr. Harris, head of the northern cod inquiry, the media covered the fishery collapse, "mainly as reaction to a crisis, as opposed to a long-term problem of coping with renewable resources."

Stories on the fishery collapse

The following is an examination of some of the coverage of the Newfoundland cod crisis over the past four years. It is not an exhaustive analysis of the Canadian media, but it looks at some of the information that has appeared in the *Globe and Mail*, *Toronto Star*, *Financial Post*, *Maclean's*, *Canadian Press*, *Reuters*, *CBC* radio and television and *Canadian Geographic* magazine. The frequency of the stories increased since 1992.

Headlines and sound bites from radio and television captured the drama of the fishery crisis with such lines as:

"Newfoundland's underwater desert"

"Oceanic dustbowl means jobs drought"

"Cod moratorium brings new wave of despair"

"East Coast fish stocks could be wiped out, report says"

"Hundreds of communities are affected, communities that have existed for centuries."

"Overfishing devastates way of life in Canada's Newfoundland"

The stories provided ever increasing amounts of detail, particularly starting in 1992, when the major fish quota reductions began:

"East Coast fish stocks, on which more than 50,000 Atlantic Canadians depend for their livelihood, are in danger of being wiped out unless commercial fishing is drastically curtailed for several years..."

"In many cases, the scientists say catches of cod and haddock off the coasts of the four Atlantic provinces need to be cut to as little as 10 per cent of their traditional levels for at least five years to allow the fish to reproduce. Earle McCurdy, president of the Fishermen Food and Allied Workers in Newfoundland said: 'It means the end of our society as we know it and the economy as we know it.'"

"Fisheries Minister John Crosbie warned last week that the stock is at its lowest level in history, and that as many as 25,000 laid-off fishery workers should be training for other jobs. A study unveiled by Mr. Crosbie last week, done by the Northwest Atlantic Fisheries Organization, indicated there are only about 22,000 tonnes of cod of spawning age off Newfoundland's shores, compared with 323,000 tonnes in 1986."

The issue of sustainability of the resource only came up directly four times in about two dozen stories that were examined:

On December 16, 1992 and again on October 13, 1993, the CBC-TV science program, *The Nature of Things*, examined the global fishery crisis. Both programs referred to the need for sustainability. In the latter one, scientist David Nettleship said of the fishery: "We have to harvest at levels that are sustainable."

On the CBC 6 p.m. national radio news on August 4, 1993, there was a discussion of how to deal with overfishing in Canada and elsewhere. The news item included a statement that Norway is trying to have a "sustainable fishery." The term was not defined.

In a letter to the editor in the January 2, 1993 *Globe and Mail*, two Newfoundland clergymen, Most Rev. Stewart S. Payne and Most Rev. J. Faber MacDonald, co-chairs of the Newfoundland and Labrador Inter-Church Coalition for Fishing Communities, wrote: "If there is to be any hope for Newfoundland to contribute to its own well-being, and possibly to the national economy, fish stocks, which have been mismanaged for so many years, must be restored to optimal, sustainable levels."

How could it have been covered differently?

Most of the coverage of the fishery crisis focussed on the numbers of the day, whether they were cod quotas, unemployed people or compensation plans. There were plenty of stories about foreign overfishing, particularly statements from Canadian officials and tales of confrontations between foreign trawlers and Canadian fishers or fishery patrols.

While conflict and crisis are legitimate parts of the fishery story, most coverage has done little if any probing into what constitutes sustainable use of the resource and what kind of economic system would encourage such use. In recent years, there was reporting on the fact that big trawlers scoop up vast quantities of fish, much of which is jettisoned, dead, as by-catch, thus reducing the breeding stock. Some stories reported the conflicts within the fishing community over whether such highly-efficient fishing machines should be used, or whether fishers should go back to a lower level of technology that had more people catching fewer fish.

In general, the media have not provided any serious analysis of the myth of the limitless sea that would supposedly keep on providing fish no matter how many nets were cast.

Could the news media have covered the cod story from the perspective of sustainability and what implications would this have for other environment and natural resource stories? What issues could have been examined in more depth?

Science

To start with, the science, upon which so many decisions were based, could have been examined much more closely. The technique of estimating the number of fish in the sea is largely based on how many fish are caught each year by researchers fishing the same part of the ocean. Dayton L. Alverson of the University of Washington has compared the accuracy of this method to that of estimating the number of cows on a ranch by having a helicopter drag a great bag across a strip of the pasture at night, then landing and counting the number of cows in the bag. In other words, hard as the scientists try, they do not have a precise way of counting the numbers of fish in the sea and predicting how many there will be in future years. This uncertainty has not been clearly explained in most stories.

The media have also had a hard time with other aspects of the science. The role of the shifting ocean currents is not completely clear, but it certainly bears closer examination in the stories. In an August 17, 1993 *Globe and Mail* op-ed page piece, Max Dunbar, professor emeritus of department of oceanography at McGill University, wrote:

"The recent changes in the Newfoundland cod stock and the decline of the North Atlantic fisheries in general have spawned a family of nonsense, half-truths, speculation and accusation that is getting out of hand. The media, as usual, are not being helpful." Prof. Dunbar went on to state that in addition to overfishing, "...the mismanagement also includes a failure to realize the important of environmental change; far too little attention has been paid to the role played by changes in the marine climate." He wrote that over the past few years, there have been major changes in cold ocean currents, that cause fish to move to warmer waters or their eggs to fail to hatch. This factor has not been given enough weight, he adds.

Technology

Over the past 40 years, the technology for finding and catching fish has become nearly as sophisticated as that for hunting submarines. This meant that each year a large number of fish could be caught even though the overall fish stock was declining. The impact of these technological changes was often not developed in newspaper stories, though it was explored in depth in one magazine article in *Canadian Geographic* and two television shows on *The Nature of Things*. The same comment holds for the ecological effects of dragging nets across the ocean bottom, disturbing life at the base of the food chain and plowing up breeding areas.

Financing

In recent decades, fishermen have switched from relatively simple, wooden boats to expensive ships made of steel and fiberglass and equipped with powerful winches and expensive electronic navigation and fish-finding devices. A 50-metre offshore dragger is worth several million dollars and even a 14-metre inshore dragger costs up to \$750,000.

With the exception of the Canadian Geographic article, the stories reviewed provided almost no analysis of how many fish would have to be caught to pay for such investments. There was, of course, no comparison of this figure to the number of fish that could be caught on a sustainable basis.

There would seem to be a natural comparison with the farm crisis of the 1980s, in which farmers saw their equipment, land and homes seized and sold because they could not make enough money to pay for the big machines and extra land they had purchased a few years earlier.

Future for the people

Even now, few stories indicate how a fishery would be made sustainable if and when the cod stocks recover. Instead, most coverage focuses on how long the government can keep paying people not to fish, whether the retraining programs will work and whether people will be able to find other employment.

A number of articles refer to the fact that the federal Northern Cod Adjustment and Recovery Program is training people for more specialized fishery jobs even though there may be no new jobs for years. The articles make little reference to what jobs would be environmentally, economically and socially sustainable over the long term. At best, there are a few references to hopes that tourism will flourish and high-tech companies will establish more plants and offices in Atlantic Canada.

There is virtually no analysis of the environmental impacts of other forms of employment. The periodic stories about attracting high-technology industries make no reference to the fact some supposedly "clean" technologies, particularly in the electronics field, have caused pollution problems by using harmful chemicals.

Two large magazine articles provide an interesting comparison of coverage.

The Maclean's cover story for the August 23, 1993 edition was headed: *Newfoundland: Can the province be saved?* The lead article says that the economy and the society itself, "have reached a dangerous turning point." The article continues, "In truth, only a dramatic reshaping of the economy can provide jobs for those laid off from the mines and mills— or for the more than 20,000 fishermen and fish-plant workers thrown out of work indefinitely by the suspension of the northern cod fishery on July 2, 1992."

It does not talk of a sustainable fishery, but says instead, "Unless the province can wean itself from its long reliance on natural resources and government supports, its very future seems in jeopardy." The closest it gets to talking about alternate economic development of the environment is to say that "adventure tourism" may create more jobs.

Newfoundland Premier Clyde Wells is quoted as saying: "At the time that we are being affected by the recession, we are also being devastated by the impact of the northern cod moratorium and the reduction, generally in fish quotas. That has had a major economic impact, but also a tremendous psychological, social and cultural impact. Coping with that is going to cause us to rethink the whole economic outlook and future of the province. We probably can't count on any significant cod fishery until after the turn of the century. What do we do with the people involved in the meantime? The only acceptable answer is that we have to try and find economic opportunity for them."

Here the quote ends, with no indication of what economic opportunities are being planned or are even practicable. Mr. Wells, like other first ministers, has appointed a Newfoundland and Labrador Round Table on Environment and Economy, an expert body that is supposed to build consensus and provide ideas on what would be sustainable forms of development for the province. Neither the premier nor members of the round table are quoted in the article as to what kinds of development would be economically, ecologically and socially viable for the region. There is no discussion of planning a new kind of fishery for the future.

By comparison, Canadian Geographic magazine's April/May '90 article, *Net Losses: The sorry state of our Atlantic fishery*, by Silver Donald Cameron, came as close as any story examined to raising the issues of sustainability, although it never used the word.

It showed how the fishery operates, as excerpts show:

This stock is fished by offshore draggers, multimillion-dollar steel vessels about 160 feet (48 metres) in length, that tow a huge bag of net along the bottom that scoops up everything in its path.

"When a drag tows through the bottom of the ocean," Smith wrote to then Fisheries Minister Tom Siddon in August 1989, "it collects anything and everything that is in its path, regardless of size or species. When the drag is dumped on deck, only the species directed for is kept, and in some cases only the large fish of that species are kept because of the higher prices paid. The rest is thrown back into the ocean."

When draggers are used, the sea bottom is, "scored as though with ploughshares, and rammed down as though with steam-rollers," says former Soviet dragger captain Vladil Lysenko, who fished extensively in Canadian waters. "Nothing is left alive for the fish to eat. What is more, this is where the fish breed, and when they lose their breeding grounds, the fish die out without leaving any progeny."

Like the tree harvester and the dynamite stick, the dragger applies raw force to a complex and sensitive ecological system. The fishery may well be a symbol for the environmental predicaments we face on many fronts.

The baited hook of the longliners, by contrast, automatically regulate the size of the fish they catch and there is no by-catch.

And how it slid into decline:

"Our technology has outstripped out science," says Dr. Leslie Harris, chairman of the federally appointed Review Panel on Northern Cod and president of Newfoundland's Memorial University. "We have underestimated our own capacity to find, to pursue, and to kill."

With foreign trawlers banned, Canadian fish companies embarked on an orgy of debt-financed expansion.

That meant bigger boats and more advanced equipment, financed by heavy loans, with heavy monthly payments. Fishermen must pursue their catches relentlessly, with steadily growing technological sophistication. The long-term result is a devastated fishery, but the short-term result was sheer gravy; one Yarmouth fisherman told his lawyer that he did not know his 1988 income but he paid over \$65,000 in income taxes. Greed and desperation are powerful motivators.

Newfoundland's inshore fishery continued to fail. To the inshore fishermen, the reason was clear: fish were scarce, and offshore draggers were catching them before they came closer to shore.

It looked at the science that was used to set fishing quotas:

How could scientists have been so wrong? First, they do not have enough information. They do a certain amount of sampling themselves, but that sampling, Harris notes, is unreliable because it takes place at the same time every year. "If you assume the same conditions exist from year to year, then you're likely to be wrong. Fish don't follow our calendar.

"The state of our ignorance is appalling. We know almost nothing of value with respect to the behaviour of fish."

The article dealt with how decision-makers need to respond to the crisis.

The 1990 total allowable catch has been set at 197,000 tonnes. "That's too high," says Cabot Martin, a St. John's lawyer who represents the Newfoundland Inshore Fishermen's Association. "The ecological approach has to come first— and we'll somehow have to find the political will to take the pain."

Drastic reduction or even abolition of draggers is a feature of many plans for reform. Clearwater's Stephen Greene and a colleague have published a radical blueprint for the Scotian Shelf, including a ban on draggers except in rare circumstances where no other technique can be used...

Greene's approach also includes punitive fines for overfishing, a ban on gillnets, a zero quota for haddock, and an industry-wide emphasis on longlining.

Two programs in the CBC-TV science series, *The Nature of Things*, in December 1992 and October 1993, also provided deeper insights into roots of the fishery crises that exist in Canada and in many other parts of the world. The programs focussed particularly on how modern technologies are leading to over-harvesting of the seas and how nations have failed to protect marine resources from depletion. Although the programs do not refer directly to the precautionary principle, adopted at the Earth Summit in Rio de Janeiro in

1992, the message comes across. It is put most clearly in an interview with Dr. Harris, who says that, "whenever there is doubt, act for conservation."

An op-ed page piece in the Dec. 13, 1989 *Globe and Mail*, by Anthony Davis, an economic anthropologist and specialist in fisheries research at St. Francis Xavier University, Antigonish, N.S. did not use the term sustainability, but dealt with root causes of the fishery decline. Mr. Davis wrote of, "foreign overfishing, downturns in the U.S. market, too many fishers chasing too few fish and over-capacity." The article continued that, "The fisheries are renewable food resources that, if given the time and opportunity, will regenerate to levels allowing quality livelihoods for every fishing community." It suggested that the fisheries would be better managed by giving control to local people because, "They, not government bureaucrats and regulators, have the most riding on effective management."

The January 2, 1993 letter from the two Newfoundland clergymen said that for the fish stocks to be restored, quotas must be set based on good science and backed up by a binding agreement and enforcement to stop the catching of fish too young to reproduce. They called for, "...a management regime, free of political influence, to ensure the restoration of the fishery on a stock-by-stock, species-by-species basis."

Few of the news stories give any detailed analysis of how the cod crisis arose, or how the fishery can be made sustainable. A couple of articles quote fishermen as saying that the problem of overfishing is largely caused by the use of large fishing boats catching too many fish so the big boats should be eliminated. For example, in a July 6, 1993 story in the *Globe and Mail*, Bernard Martin, an inshore fisherman from Petty Harbour, said that high-powered trawlers employing only small crews were catching nearly half the cod quota allotted by the federal government. He said, "...the federal government should pay large fishing companies to eliminate the draggers and put the fishery back in the hands of the thousands of conservation-minded fishermen using hook-and-line technology."

The fallout of the fishery crisis will continue for many years. Following are a number of questions that could be asked about the fishery and sustainable development, particularly in Newfoundland.

- What level of population is sustainable in this province of 577,700 people and its 700 communities, 400 of them dependent on the fishery?
- What level of family income should one expect in the province that now has Canada's lowest per capita income?
- What standard of living, education, health, business activity and government services are sustainable, given the limitations of the environment?
- How much can the fishery contribute, and how much will have to come from other activities?
- How many fish will have to be caught to pay for a given investment in fishing technologies, and is that a sustainable level? Is allowance being made for natural fluctuations in fish numbers and any drop in the price of fish?
- What is being done to reduce accidental killing of large numbers of fish and other marine creatures by some of our fishing technologies?
- How is the concept of a sustainable fishery being worked into decision-making by governments and business people in Newfoundland and elsewhere?
- What are the pros and cons of exploiting oil, tourism or trying to attract high-technology industries? What are their environmental, economic and social impacts?

Obviously there is no single answer. We know that a relatively large number of people can live well by over-harvesting natural resources such as fisheries for a short time. Then the stock collapses, bringing down the economy and endangering the stability of the society in a kind of domino effect. It makes sense that a few people can live very well by harvesting a lot of fish each with highly efficient equipment. More people can live off the same resource, but they will each have a lower income. At a certain point no

more people can be supported at even a modest level without harvesting more fish than are reproduced.

Into that mix you have to factor environmental variability. Scientists tell us that the waters off Newfoundland have been colder than usual in recent years, and this is almost certainly reducing cod reproduction. This means that any cod quotas have to have a safety margin built in to account for natural fluctuations in the resource stock.

Writing about sustainability

What would a story from the viewpoint of sustainability look like? These are some of the elements that could be used:

This would be a typical lead.

East Coast fish stocks, on which more than 50,000 Atlantic Canadians depend for their livelihood, are in danger of being wiped out unless commercial fishing is drastically curtailed for several years

It might, instead be:

Canadians have been harvesting cod at excessive levels for the past few decades, according to government and industry experts. The only way to ensure that the fishery will again become sustainable is to bring harvest levels back into line with nature's productive capacity.

When writing about the accuracy of scientific estimates of what the sea can produce on a sustainable basis:

Even the most knowledgeable scientists are unsure exactly how much excess fish can be skimmed off each year without reducing the stock, but they believe harvest levels up to about 1950 were sustainable.

When writing about the amount of money being invested into fishing equipment:

Governments and fishermen are now stuck with the fact that the industry spent hundreds of millions of dollars on equipment able to catch fish and process at levels that cannot be maintained over the long term. Huge fishing trawlers are so efficient that only a small number of them can catch the annual quota for a whole region in a short time, using few people.

When writing about how quotas are set:

Atlantic Canadians must now decide how they want to share the quota and whether that means scrapping big boats in favor of more smaller vessels, employing more people. A growing number of fishing communities have told Ottawa and their provincial governments that they want the right to set local quotas as part of a general quota for the Atlantic region.

There needs to be constant attention on how a society can be sustainable:

Community leaders say that they are determined to maintain the viability of their fishing port towns, some of which have been operating for centuries. They recognize that they will not have huge incomes and cannot support very large populations from the fishery.

Some will try to diversify by attracting tourists and high-tech industries to locate in what are often beautiful areas.

Any transition to a sustainable economy will take a number of years. In Atlantic Canada this process will take even longer because people first have to wait for the fish stocks to recover to "normal" levels so a fishery can be reestablished. In the meantime, unemployed fishers and fish plant workers will looking for continuing support, partly by grants from the rest of Canada.

Sustainability in other fields

The principles that apply to covering the fishery story can be used for a broad range of other stories on the sustainability of how we use resources and pollute the environment. For example:

Agriculture

Farm subsidies and crop insurance programs sometimes encourage the plowing of marginal land, because crop insurance is paid on the acreage seeded, whether or not it is good land to cultivate. As a result, areas that once provided natural habitat, windbreaks or water storage are plowed to qualify for government payments. The technology of modern farming is open to many questions, based on the evidence that it has severely depleted natural soil fertility and led to widespread erosion and contamination by various chemicals.

Forestry

Conflicts over the forests are frequently portrayed as preservationists versus rapacious timber barons. There is little analysis of when and how we are going to produce needed forest products in a manner that is sustainable. Reporters need to ask not only how many trees are being planted, but for evidence that they will grow into healthy trees. One needs to ask when those trees will be ready for harvest, and how much longer will we have to cut virgin forests before second growth is ready? Also, will the second-growth trees be of the same quality as virgin timber and if not does this mean they will be worth less to the economy?

Energy and the greenhouse effect

Humans now release about 7 billion tonnes of carbon a year into the atmosphere as carbon dioxide, a greenhouse gas that helps trap heat near the earth's surface. In addition, we release large amounts of other greenhouse gases, including nitrous oxide and methane. Canada has a policy of stabilizing greenhouse gas emissions at 1990 levels by the year 2000. The media needs to be asking how, for example, energy policies that support the development of fossil fuels will be offset by specific actions that will reduce greenhouse gas emissions.

Toxic substances

A very wide variety of toxic chemicals and metals are released into the environment as a result of manufacturing processes and the use of consumer products. Such chemicals as PCBs build up in the food chain and have harmful effects. Other, supposedly inert substances such as chlorofluorocarbons have indirectly harmful effects by damaging the ozone layer and exposing us to higher levels of UV-B radiation from the sun. The media has printed and broadcast thousands of stories about the hazards of toxic substances, but relatively few of the stories deal with specifics on how the materials can be controlled or replaced by less hazardous products or processes. For example, PCBs are still used in a large number of electrical transformers, even though there have been many cases of leakage or evaporation into the environment.

The public is now deeply worried about the state of the environment, and frustrated by the fact that there seem to be few solutions. There is no simple formula for sustainable development, but there are many options for change. People need to know that while over-harvesting a resource can provide a lot of money and employment in a short time, in the long run it leads to an economic crash that produces even less money and fewer jobs. The media could do a much better job of asking questions that would help people detect cases of over-harvesting, which have a potential to cause problems in the future. Dr. Harris said that by explaining the ecological impacts of economic decisions, such as overfishing, the media could, "help to set a moral tone for society."

Whether or not the media are setting a moral tone, their coverage is clearly shaping public perceptions of the cod story and other natural resource and environmental issues. Too often, the coverage fails to go beyond the simplistic level of claim and counter-claim and the momentary hit of another conflict piece. Journalists are not getting at the root causes of the issues and helping people to understand what realistic and sustainable options they have for change. As a result, there is virtually no sense in the public debate of how society needs to reorganize or change its values or decision-making processes to avoid more such crises.

The cod story, the conflict over forestry and similar stories are not easy to understand or cover. But, if we do not learn from the northern cod story we will be condemned to repeat it. The media will remain observers of and reporters on the disaster but they will do little to help people understand the root causes and prevent such crises from recurring.

CHECKING FOR SUSTAINABILITY

The following are four key principles of sustainability found in such documents as the Brundtland report:

- We need to maintain the biological diversity that is a fundamental part of a healthy environment and the basis for our entire economy and lifestyles.

Although there are no precise estimates of how many species are being lost, there are estimates of hundreds a year, mainly due to the clearing of land. The Brundtland Commission recommended protecting about 12 per cent of the planet's land surface to preserve habitat for species. Experts also say that species can be preserved by shaping development to allow for some habitat to be preserved and to allow migration corridors between protected areas.

- We need to maintain life supporting ecological systems such as the ozone layer, clean air, fertile soils and a supply of fresh water.

Damaging the ozone layer, acidifying the environment, erosion of soil and contamination or excessive use of fresh water supplies are activities that need to be controlled to prevent ecological systems from being run down.

- We need to maintain a healthy stock of renewable resources such as fish and trees.

Development must not deplete natural resources. Rather it must live off the "interest" of the natural capital. This will mean harvesting such resources and fish and timber within their ability to reproduce. It will mean farming in ways that do not deplete soil fertility.

- We need to use non-renewable resources in a way that does not deplete their stocks for us or future generations.

Non-renewable materials such as petroleum are lost once they are burned. However, they become reusable resources when, for example, they are made into plastics and these materials are recovered and recycled or reused. Metals can be recovered and reused indefinitely.

There is no magic test for sustainability, but if you ask the following questions (and others that you can develop) you will get a sense of whether a new product, project or idea is more or less sustainable than the alternatives:

- Is it sustainable in that it can be carried on indefinitely without running down its resource base? Can that claim be proven?
- Is the project economically sound, and able to be financially viable while respecting the environment, or does it require the discharge of harmful substances or over-harvesting of resources?
- It is socially and culturally sound? Is it being developed and carried out with input from those people who will be affected?
 - Does it allow a healthy amount of local decision-making and control over resources? Are all people given equal opportunity to participate in the decision-making process.
 - Do people who use the resources have some ownership and thus interest in preserving them?
 - Does the development create jobs that will last?
- Will this project or program use up non-renewable resources? (Will it use them at a greater or lesser rate than some alternative program?)
- Will it use renewable resources at a rate greater than natural replacement? (What is the quality of replacement? For example, will the wood of new trees be as good as the old, and will it be ready in time for need?)
- Does it erode or degrade soil?
- Does it reduce available fresh water supplies?
- Does it reduce food supplies?
- Does it pollute the air, land or water?
- Does it damage the ozone layer?
- Does it add greenhouse gases to the atmosphere?
- Does it result in more or less garbage?
- Does it reduce the diversity of living species?

- Does it release toxic substances into the environment? If so, what are their effects and what standards or guidelines exist for allowable concentrations in humans, wildlife, foods, air, land or water?

In many cases, there will be no easy answers for these questions. No project or product will come through such a screen showing zero impact. The challenge is to find those that are least environmentally damaging, and to find a mix that, in total, will not put too heavy a strain on the biosphere.

APPENDIX I— PRINCIPLES OF SUSTAINABILITY

The National Round Table on the Environment and the Economy has produced the following Objectives for Sustainable Development, with a preamble:

The natural world and its component life forms and the ability of that world to regenerate itself through its own evolution has basic value. Within and among human societies, fairness, equality, diversity and self-reliance are pervasive characteristics of development that is sustainable.

1. **Stewardship**
We must preserve the capacity of the biosphere to evolve by managing our social and economic activities for the benefit of present and future generations.
2. **Shared Responsibility**
Everyone shares the responsibility for a sustainable society. All sectors must work towards this common purpose, with each being accountable for its decisions and actions, in a spirit of partnership and open co-operation.
3. **Prevention and Resilience**
We must try to anticipate and prevent future problems by avoiding the negative environmental, economic, social and cultural impacts of policy, programs, decisions and development activities. Recognizing that there will always be environmental and other events which we cannot anticipate, we should also strive to increase social, economic and environmental resilience in the face of change.
4. **Conservation**
We must maintain and enhance essential ecological processes, biological diversity and life support systems of our environment and natural resources.
5. **Energy and Resource Management**
Overall, we must reduce the energy and resource content of growth, harvest renewable resources on a sustainable basis, and make wise and efficient use of our non-renewable resources.

6. **Waste Management**
We must first endeavor to reduce the production of waste, then re-use, recycle and recover waste by-products of our industrial and domestic activities.
7. **Rehabilitation and Reclamation**
Our future policies, programs and development must endeavor to rehabilitate and reclaim damaged environments.
8. **Scientific and Technological Innovation**
We must support education, and research and development of technologies, goods and services essential to maintaining environmental quality, social and cultural values and economic growth.
9. **International Responsibility**
We must think globally when we act locally. Global responsibility requires ecological interdependence among provinces and nations, and an obligation to accelerate the integration of environmental, social, cultural and economic goals. By working co-operatively within Canada and internationally, we can develop comprehensive and equitable solutions to problems.
10. **Global Development**
Canada should support methods that are consistent with the preceding objectives when assisting developing nations.

Strategic Imperatives

The National Round Table has also adopted a series of strategic imperatives

1. **Acknowledging the need for growth sufficient to meet human needs and aspirations.**
but also:
2. **Rapidly reducing the energy and resource content of growth.**
3. **Increasing equity within nations and between developed and developing nations.**
4. **Reducing high rates of population growth.**

5. Reducing certain forms of consumption.
6. Conserving and enhancing the resource base.
7. Establishing more open information systems.
8. Encouraging high rates of investment to restore capital that has been lost.
9. Changing institutions in ways that will ensure environmental and economic issues are integrated during decision making.

APPENDIX II— SUSTAINABLE DEVELOPMENT CONTACTS

Round Tables on Environment and Economy

There are round tables in every province and territory. A number are developing sustainable development (conservation) strategies. In addition, there is a growing number of municipal round tables.

National Round Table on the Environment and the Economy
1 Nicholas Street, Suite 1500
Ottawa, Ontario K1N 7B7
Tel, (613) 992-7189 Fax, (613) 992-7385

Newfoundland and Labrador Round Table on Environment and Economy
P.O. Box 8700
St. John's, Newfoundland A1B 4J6
Tel, (709) 729-0027 Fax, (709) 729-1930

Nova Scotia Round Table on Environment and Economy
P.O. Box 2107
Halifax, Nova Scotia B3J 3B7
Tel, (902) 424-6346 Fax, (902) 424-0501

New Brunswick Round Table on Environment and Economy
P.O. Box 6000
Fredericton, New Brunswick E3B 5H1
Tel, (506) 453-3703 Fax, (506) 453-3843

Prince Edward Island Round Table on Environment and Economy
P.O. Box 2000
Charlottetown, Prince Edward Island C1A 7N8
Tel, (902) 368-5274 Fax, (902) 368-5830

Table ronde Québécoise sur l'environnement et l'économie
3900, rue Marly, 5e étage, boîte 78
Sainte-Foy, Québec G1X 4E4
Tel, (418) 643-7860 Fax, (418) 643-7812

Ontario Round Table on Environment and Economy
1 Dundas Street West, Suite 2502, P.O. Box 4,
Toronto, Ontario M5G 1Z3
Tel, (416) 327-2032 Fax, (416) 327-2197

Manitoba Round Table on Environment and Economy
Unit 305 - 155 Carlton Street
Winnipeg, Manitoba R3C 3H8
Tel, (204) 945-1124 Fax, (204) 945-0090

Saskatchewan Round Table on Environment and Economy
218 - 3085 Albert Street
Regina, Saskatchewan S4S 0B1
Tel, (306) 787-1627 Fax, (306) 787-0197

Alberta Round Table on Environment and Economy
Suite 400, 9925 - 109 Street
Edmonton, Alberta T5K 2J8
Tel, (403) 427-5792 Fax, (403) 427-0388

British Columbia Round Table on Environment and Economy
Market Square, 560 Johnson Street, Suite 229
Victoria, British Columbia V8W 3C6
Tel, (604) 387-5422 Fax, (604) 356-9276

Northwest Territories Round Table on the Environment and the Economy
P.O. Box 1320
Yellowknife, Northwest Territories X1A 2L9
Tel, (403) 920-3210 Fax, (403) 873-3297

Yukon Council on the Economy and the Environment
P.O. Box 2703
Whitehorse, Yukon Y1A 2C6
Tel, (403) 667-5939 Fax, (403) 668-4936

Other Expert Groups on Sustainable Development

Institute for Research on Public Policy
250 Albert Street, Suite 1360
Ottawa, Ontario K1P 6M1
David Runnalls, Director
Environment and Sustainable Development Program
Tel, (613) 238-2296 Fax, (613) 238-8515

International Institute for Sustainable Development
212 McDermot Avenue
Winnipeg, Manitoba R3B 0S3
Created by Federal and Manitoba governments to provide international research and leadership on sustainable development.
Bonnie Bisnett, Communications
Tel, (204) 958-7700 Fax, (204) 958-7710

Canadian Global Change Program
Royal Society of Canada
P.O. Box 9734
Ottawa, Ontario K1G 5J4
Acentre of expertise on major environmental issues and how they affect Canada.
Brian Bornhold, Program Director
Tel, (613) 991-5642 Fax, (613) 991-6996

Centre for Our Common Future
This organization was created to carry on some of the work of the Brundtland Commission and it is also monitoring follow-ups to the 1992 Earth Summit in Rio de Janeiro. The Geneva-based group is a key centre of information on who is doing what about sustainable development around the world.
Palais Wilson, 52, rue des Pâquis
CH-1201 Geneva, Switzerland
Warren H. Lindner, Executive Director
Tel, (41 22) 732 71 17 Fax, (41 22) 738 50 46

Department for Policy Coordination and Sustainable Development
United Nations, Secretariat Building, Room S-3060
New York, N.Y. 10017 U.S.A.

Tel, (212) 963-5900 Fax, (212) 963-1010

This department was created to help implement recommendations of the Earth Summit. There is also a UN Commission on Sustainable Development.

Worldwatch Institute

Publishes annual State of the World report, issue papers and Worldwatch Magazine. It is an excellent source of commentary on sustainable development.

1776 Massachusetts Avenue NW

Washington, D.C. 20036, U.S.A.

Lester Brown, President

Tel, (202) 452-1999 Fax, (202) 296-7365

World Resources Institute

1709 New York Avenue NW

Washington, D.C. 20006 U.S.A

This organization publishes a major world environmental data report biennially, as well as separate papers on issues.

Tel, (202) 638-6300 Fax, (202) 638-0036

ECODECISION

276, rue Saint-Jacques Ouest, Bureau 924

Montréal, Québec H2Y 1N3

This bilingual magazine provides ideas from around the world on environment and sustainable development.

Tel, (514) 284-3033 Fax, (514) 284-3045

APPENDIX III— EXAMPLES OF COVERAGE FROM SOME STORIES ON THE FISHERY CRISIS

Please see attached stories.

MYSTERY ILLNESS AND THE GULF WAR

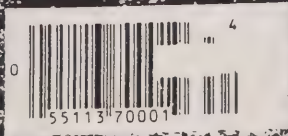
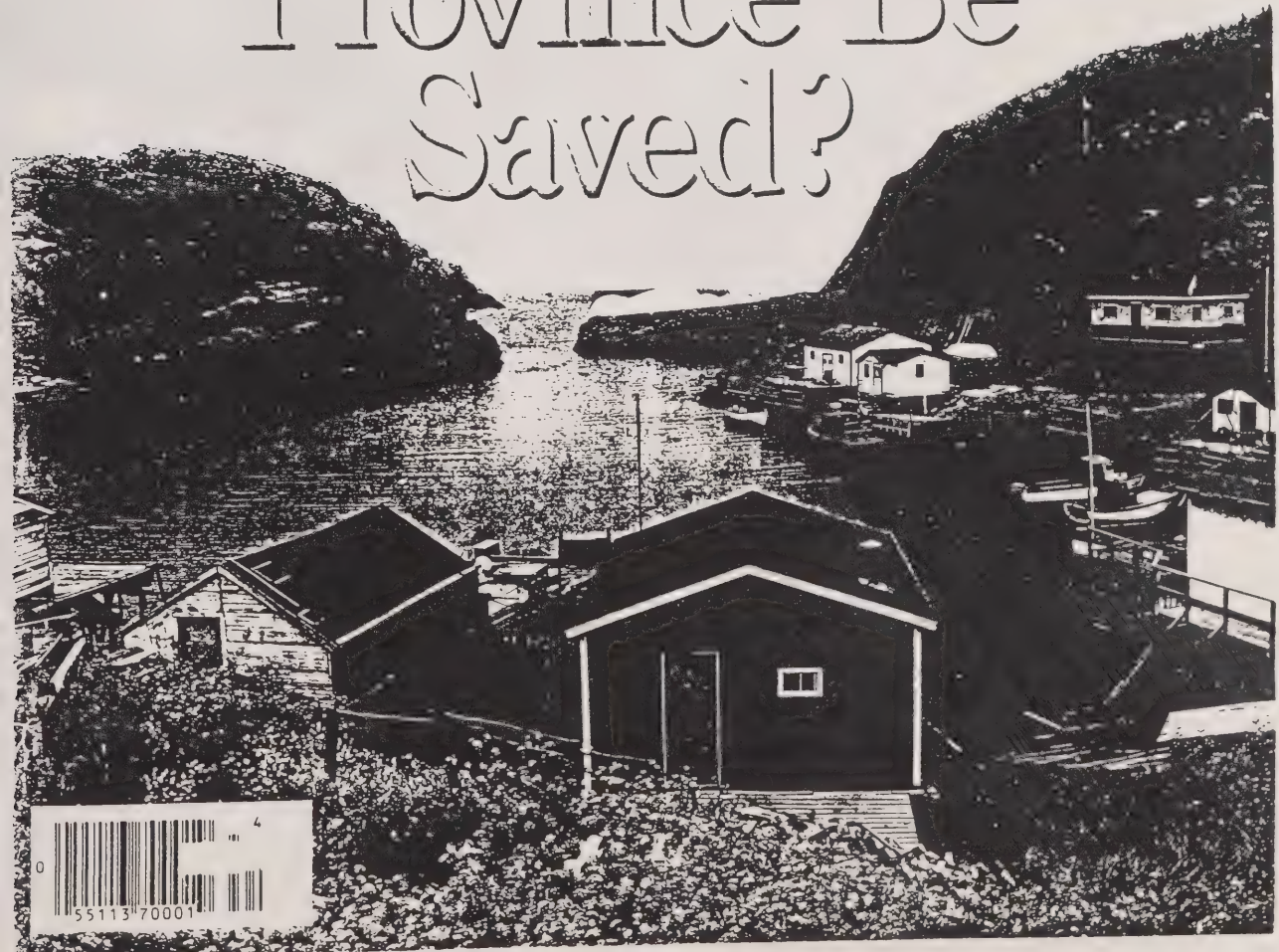
CANADA'S WEEKLY NEWSMAGAZINE

AUGUST 23, 1993 \$2.50

Maclean's

NEWFOUNDLAND: A SPECIAL REPORT

Can The Youngest Province Be Saved?



Globe and Mail

Why have the cod gone? It's just

BY MAX DUNBAR
Montreal

Aug 17/93

THE recent changes in the Newfoundland cod stock and the decline of the North Atlantic fisheries in general have spawned a family of nonsense, half-truths, speculation and accusation that is getting out of hand. The media, as usual, are not being helpful.

There is little doubt that the fishery resources have been overused, that fishing methods have "advanced" to a point of serious overfishing, and that international co-operation to return to better ways has not been achieved. However, the mismanagement also includes a failure to realize the importance of environmental change; far too little attention has been paid to the role played by changes in the marine climate.

Since most of us are landlubbers, and all of us are air-breathers, we assume that "climate" refers only to air, wind and air-temperature changes. Ask the fish! The sea has its own climate.

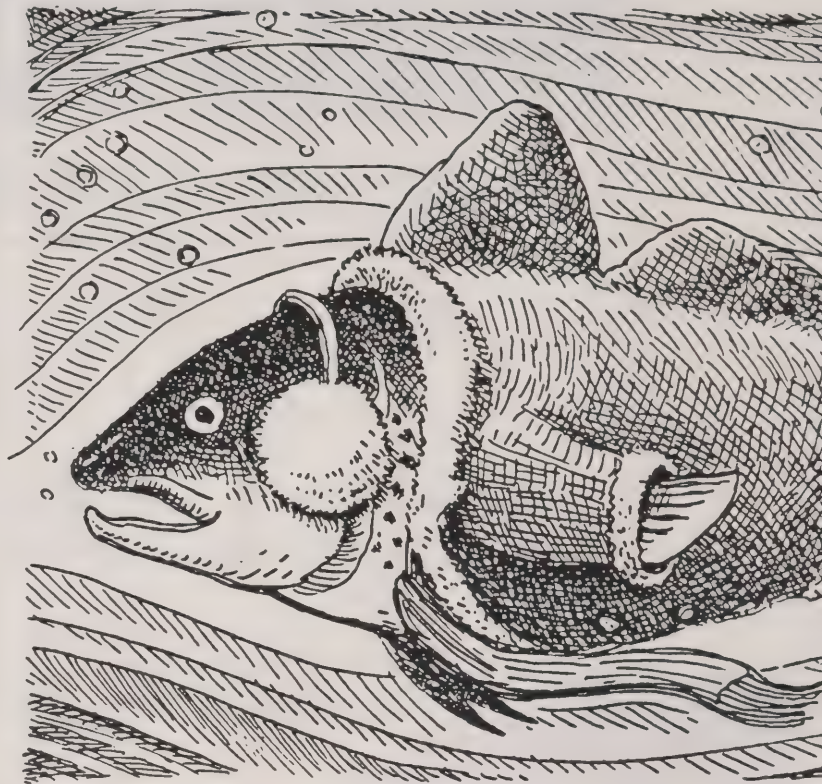
For one thing, water accepts and releases heat much more slowly than does air, which means marine climatic changes have their own rules of behaviour. For another, the seas of the world have "water masses" of differing properties — such as heat and salt — and the distribution of marine life is dictated by those water masses.

In the North Atlantic, the two dominant water masses are (a) Arctic water originating in the Arctic Ocean and (b) Atlantic water. (Forget the Gulf Stream, a special and limited current that does not enter the present argument.)

Arctic water is cold, roughly 2 to minus-1.8 degrees Celsius, and fairly low in salinity (say, 30 to 33 grams of salt per kilogram). The Atlantic water is much warmer, with salinity of about 34 to 36 grams per kg. In oceanographic terms, these are big differences and result in significantly different densities.

Arctic water flows out of the Arctic Ocean by two routes: the East Greenland Current, and the water that flows southward between the Canadian Arctic Islands. This second current flows south along the coast of Baffin Island, and is joined by water from West Greenland and from Hudson Strait to form the massive Labrador Current, which flows along the Labrador coast to Newfoundland.

Plants and animals in the oceans are adapted to live within certain specific limits of temperature, species for species. For instance, the capelin, the little fish so important to the northern Atlantic regions, belongs to the Subarctic (mixed Arctic and Atlantic) zone. If the Atlantic element increases, the capelin move north; if it



known for decades, and was well established by the Danish biologist Adolf Jensen in 1939.

IN 1906, the Danes began a program of exploratory fishing which continues to this day. In the second decade, there were signs of Atlantic cod in the extreme southwest of Greenland, but not in sufficient quantities to warrant the establishment of a fishery. By 1917, the cod began to appear in increasing numbers, moving farther north each year, and at the same time the temperature of the West Greenland Current, which contains both Arctic water and Atlantic water, began to rise.

By 1920, the cod take began to look significant, and the Greenland cod fishery grew to real economic importance. After a peak in temperature and in the fishery output in the mid-1930s, there was a slight decline; but the temperature and the cod fishery recovered, up to a second and lower peak in 1960.

From that date, there began a gradual decline in both the temperature and the fishery, and by 1990 the temperatures were

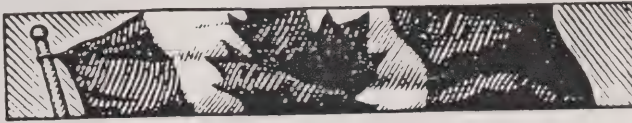
dead. The Atlantic water component of the West Greenland Current had fallen drastically.

Move over now to the Canadian side of the Labrador Sea. The West Greenland Current begins to spill off water to the west at the latitude of the Davis Strait ridge, approximately opposite to Hudson Strait; so what happens in West Greenland has an important effect on the Labrador Current, and therefore on the Newfoundland waters.

The West Greenland cod, in the early 20th century, came from Iceland; they were not the same stock as the Newfoundland stock. But since the water the two stocks inhabit is a continuous flow, what has happened in West Greenland may be expected to spill over to Newfoundland.

The cod fishery of Newfoundland has existed for a very long time, and the abundance of cod in the time of John Cabot, the explorer who came to Labrador in 1497, was one of the wonders of the world. But not much is known of fluctuations in the fishery, of whether there were times when the cod were less abundant than at other times.

There is some evidence in the literature that the fishery was at a low point in the



BACKGROUND / Groundfish

Oceanic dustbowl means job drought

BY KEVIN COX
Atlantic Bureau
Halifax

THE first chapter of the recent history of the Atlantic fishery could appropriately be entitled *Great Expectations* but its last chapter might be better called *Lost in the Barrens*.

While fishermen, scientists, ecologists and politicians argue about who contributed most to the catastrophic state of commercial groundfish stocks, few people are talking about the brutal reality of the situation — that thousands of people with little formal education and few other employment opportunities are permanently out of work.

A recent study for the Newfoundland Department of Fisheries stated that as many as 14,500 fishermen and fish-plant workers — a third of the present fishery work force, will lose their jobs in the next five years even if there is a modest recovery in the depleted northern cod stocks. If that situation is applied to all groundfish processing plants in Atlantic Canada, more than 25,000 fishery workers would lose their jobs by the end of the decade.

That's bitter medicine for those who catch and pack fish. In the early 1980s the Atlantic fishery went through a dizzying expansion as stocks of cod, haddock, pollack and redfish appeared to be recovering from a near-collapse in the mid-1970s. The recovery in the fish stocks also coincided with a rapid rise in demand as health-conscious consumers clamoured for alternatives to red meat.

By 1987 there were 890 plants processing fish in the four Atlantic provinces and Quebec, compared with 559 a decade earlier. Even as

fishermen warned of declining fish stocks, another 173 plants were built by 1991, many of them completed with provincial grant money from politicians hoping to convert jobs on the cutting line into votes in the ballot box.

From 1978 to 1987 more than 50,000 new jobs were created in the Atlantic fishing industry, which employed 140,000 people by 1987.

The incomes of fishermen also took a major leap. In Nova Scotia, where fishermen were purchasing \$750,000 vessels to comb the ocean bottom for cod, haddock and more lucrative scallops and lobsters, the average fisherman's income jumped to \$26,353 a year in 1988 from \$18,028 in 1984.

In Newfoundland, where fishermen have shorter fishing seasons and generally use smaller vessels, the average income rose to \$15,513 a year in 1988 from \$9,935 four years earlier.

But the bonanza from the depths of the ocean was short-lived. In 1985, the federal government permitted Atlantic fishermen to catch a record 576,000 tonnes of cod. By 1992 the cod quotas were cut back to 200,000 tonnes and finally a two-year moratorium was imposed on the major Atlantic fishery — northern cod off the northeastern shore of Newfoundland.

Now the cod are so scarce in all parts of the Atlantic that federal scientists are having trouble locating any fish on research cruises. Fishermen will likely catch less than 100,000 tonnes of cod. Many of the huge multimillion-dollar trawlers that harvested fish so efficiently now collect rust. The parking lots of many of the shiny new processing plants have grown over with weeds — perhaps a fitting symbol for a once-bountiful resource that has been converted

SHIP TO SHORE / *Being paid not to fish has left
Newfoundlanders restless, anxious about future*

Cod moratorium brings new wave of despair

BY KEVIN COX
Atlantic Bureau
Tors Cove, Nfld.

FOR five summers Chris O'Driscoll, like generations of Newfoundland fishermen before him, dragged his fatigued body down to the wharf before dawn to chase cod in a small boat on the Northwest Atlantic Ocean.

This year, with the federal government paying him to stay off the water, the 33-year-old Tors Cove fisherman wishes he had some reason to wake up early.

"A lot of times it's an empty feeling; you get up in the morning and you've got nothing to get up for," Mr. O'Driscoll said, searching for words to describe how he is coping with the second season of idleness imposed by the federal moratorium on northern cod fishing.

"It used to be [when he was fishing for northern cod] you were too tired to even think when you'd get home. You'd just flop and you'd go again. But what are you getting out of bed for now at 5 o'clock in the morning?" he asked, swatting mosquitoes as he repaired his fishing boat in his garden.

Mr. O'Driscoll's restlessness is shared by many of the 25,000 New-

foundlanders who are going to be over or how long the money will continue. The whole life and rhythm of the community is tied up in the fishery."

Mr. Martin, whose home looks over a deep harbour where most fishing boats are lying on the shore, said that the small communities will never be able to live off the sea as long as major fish processors such as National Sea Products and Fishery Products International are allowed to use high-powered trawlers employing only small crews to catch nearly half the cod quota allotted by the federal government.

Mr. Martin said the huge trawlers kill large amounts of small fish in their nets and have played a major role in destroying the cod stocks. He said the federal government should pay the large fishing companies to eliminate the draggers and put the fishery back in the hands of the thousands of conservation-minded fishermen using hook-and-line technology.

BUT former federal fisheries minister John Crosbie said he doesn't accept the argument that only smaller boats should be allowed in any cod fishery of the future.

"We can't accept Ludditism," Mr. Crosbie said recently when asked about scaling down the fishery. He noted that many of the smaller boats are equipped with the latest fish-finding and fish-catching technology.

But Mr. Martin said that if the high-powered fish harvesters take the lion's share of a small fishery, many small communities will disappear and thousands of fishery workers will leave the area to eke out a menial existence on the mainland.

In spite of predictions in a provincial Department of Fisheries study that at least 10,000 of the more than 40,000 fishery workers in the province will have to leave the scaled-

**'I've spent my whole
life in this and I can't
turn to something else
just like that.'**

foundland fishery workers put out of work by the two-year moratorium imposed last July as a last-ditch attempt to save the depleted cod stocks. During the past year, many fishermen and plant workers have traded their cod traps and gutting

THE BIG CHILL / Between overfishing and the frigid Labrador Current, the question now is not when the northern cod stock will recover — it is whether the cod will survive at all

جوليا
23/6/86

Newfoundland's underwater desert

BY KEVIN COX
Atlantic Bureau
Halifax

IN the first week of June, Newfoundland inshore fisherman Reg Best went aboard a federal research vessel equipped with some of the world's most powerful fish finders.

What he found was an under-

water desert.

"I kept thinking, 'There has to be something out there, it's a vast ocean.' But we travelled 1,000 miles for nine days and we found no fish," the Petty Harbour fisherman said.

Scientists are baffled by the near-disappearance of the northern cod stock, mainstay of the Newfoundland economy for nearly five centuries.

Last year's federal moratorium on fishing for northern cod was supposed to end next spring as the fish recovered, but there is a growing fear that the stock has been wiped out by high-powered technology and waters too cold even for cod.

Fisheries Minister John Crosbie warned last week that the stock is at its lowest level in history, and that many of the 25,-

000 laid-off fishery workers should be training for other jobs.

A study unveiled by Mr. Crosbie last week, done by the Northwest Atlantic Fisheries Organization, indicated there are only about 22,000 tonnes of cod of spawning age off Newfoundland's shores, compared with 323,000 tonnes in 1986.

Please see COD — A6

Ottawa widens benefits net for fishermen

By John Spears
TORONTO STAR

HALIFAX — Ottawa has decided to pay another 7,500 Atlantic coast fishermen and fish plant workers not to work this year because of drastically reduced catches.

Federal Fisheries Minister John Crosbie said each worker will get up to \$406 a week. The plan will cost Ottawa \$191 million.

The new program means that more than 32,000 fishermen and fish plant workers, along Canada's entire Atlantic coast, will get handouts this year because of devastated fish populations.

Last July, Crosbie closed down the northern cod fishery off the east coast of Newfoundland and Labrador for at least two years. Overfishing by Canadians and foreigners has driven the cod fishery near destruction.

About 25,000 Newfoundland fishermen and plant workers are getting up to \$400 a week because of the northern cod fishery closing. That's costing Ottawa \$400 million a year.

Yesterday's announcement extends similar aid to those who fish the Gulf of St. Lawrence and the Atlantic south of Newfoundland and Nova Scotia.

Their fishery hasn't been closed entirely. But, last December, Crosbie slashed the amount of fish to be caught in those waters by about 60 per cent.

Fish populations have crashed all along Canada's Atlantic coast. The fishing grounds affected by the latest cuts lie wholly within Canada's 200-mile economic zone and are fished almost entirely by Canadian vessels.

The reductions affect only groundfish, such as cod, haddock and flatfish. Lobsters and scallop populations are thriving.

Fishermen will have to show that at least half their income came from groundfish in order to qualify for the assistance, which will act as a supplement to unemployment insurance payments. Plant workers will qualify if their plants processed at least 25 per cent groundfish.

To get their payments, workers will have to take government-approved courses — to improve fishing skills, retrain for new jobs or learn to read and write.

OVERFISHING DEVASTATES WAY OF LIFE IN CANADA'S NEWFOUNDLAND

By Deborah Charles

1995

ST JOHN'S, Newfoundland, April 1, Reuter - In Canada's rugged province of Newfoundland, where fishing for cod once was king, a way of life is being devastated because the offshore seas no longer teem with a bountiful harvest.

"It was fish that settled this place," said Earle McCurdy, secretary-treasurer of the Fisherman, Food and Allied Workers Union. "A lot of people are fifth- and sixth-generation fishing families. What do they do now?"

Rampant exploitation of the seas by Canadians and foreigners alike, coupled with environmental changes have drastically reduced fish stocks off the coast of Newfoundland.

Stocks have been so depleted that the Canadian government imposed a two-year ban on cod fishing last summer. At least 20,000 fishermen -- who rely mainly on cod -- lost their jobs, and the Canadian government will end up paying about C\$800 (\$640 million) in subsidies so the workers will not fish.

"Over the last 10 years we have had a major decline in just about all of our fish stocks," said Victor Young, chairman of Fishery Products International, Newfoundland's largest fishery operation.

"We received poor scientific advice and set our total allowable (fishing) limits too high," he said. "Canadians were overfishing, and foreigners were also overfishing."

Experts blame environmental change as well as overfishing for the problem. They say cooler water temperatures and a disruption of the food chain have also harmed cod stocks. Although scientists are not sure why, they say the capelin stock -- the food for cod -- has basically disappeared, starving the fish or forcing them to migrate to find other food sources.

No one knows for sure whether the depleted stocks will recover during the moratorium.

"The implications are frightening for the fishing society in Newfoundland," McCurdy said. "There is a high level of anxiety and fear about the future. Will the stocks rebound...and if so to what extent?"

The cash-strapped island of Newfoundland is dotted with hundreds of fishing villages, big and small, that depend on the sea and the fishing industry for their livelihood. Many have families that for centuries have done nothing but fish.

"The question on everybody's mind but not on everybody's lips, is how can communities remain as fishing communities?" said Arthur May, president of Memorial University and former federal deputy fisheries minister.

Some experts say the two-year moratorium is not enough time to allow the fish stocks to recover.

"Most people feel it will be a minimum of four to five years before significant improvement is seen," said Young.

"Even then, we must fish in a more conservative manner so that it won't happen again."

Estimates vary, but up to 10,000 fishermen may never go back to work full time, even after the system is revamped and new rules are put in place to stabilise the fish stocks.

Some of those who lose their jobs may opt for early retirement, but there will still be thousands out of work. The government and unions have talked about retraining programmes, but with unemployment in Newfoundland around 20 per cent -- the highest in Canada -- there are not many options available.

Newfoundland is not the only province hurt by dwindling fish stocks. To the southwest more than 1,000 Nova Scotia fishery workers last week protested on a Halifax pier against federal fishing restrictions they say are unfair.

Fishermen and fish processors blared boat horns to protest against the lack of a compensation package to make up for cuts in cod quotas of nearly 50 per cent in Nova Scotia. The moratorium applies only to waters closer to Newfoundland.

But the Canadian government says no compensation programme similar to the one in Newfoundland will be forthcoming because

Restore fish stocks to sustainable levels

We respond to Jeffrey Simpson's column *Crosbie Hooks The European Community and Lands A Good Fish Deal* (Dec. 22), so that your readers can understand why there are so many skeptics to the European Community/Canada fisheries agreement announced by Fisheries Minister John Crosbie. The Inter-faith Coalition, recently formed through the efforts of the five main churches in Newfoundland, has set two objectives at the urging of many people in the province.

Those objectives are the pressing need to rebuild the fisheries resources to their historic, optimal, sustainable levels, and put in place a management regime, free of political influence, to ensure the restoration of the fishery on a stock-by-stock, species-by-species basis. Many fishery experts, including experienced fishermen, have analyzed the agreement in depth, and are concerned that this agreement will not facilitate the restoration of the stock fished by foreign nations, including the European Community. Mr. Simpson may not be aware that the fish stocks in 2J3KL, and 3N0 (from Labrador to the Southeast Grand Bank) are at the lowest levels in recorded history. The spawning biomass is so small, and so weak (containing few year classes) for all species, cod, flatfish, redfish, and turbot, that most experienced

fishery people are describing the situation as an ecological disaster, which will have severe socio-economic consequences affecting two-thirds of the fishery population for a period of five to seven years.

So please understand the pressing need for a rebuilding process, so that there will be hope for Newfoundlanders and other Canadians who fish these stocks.

The agreement should have had a binding agreement containing a scientifically based process to rebuild these valuable renewable resources. Instead we have an agreement which legitimizes the catching of 16-inch cod and 9.5-inch flatfish (both species at least three years too young to reproduce and add to the spawning biomass). There is no reference at all to the important turbot species, which remains totally unregulated and is in the process of being fished to practical extinction by foreigners.

The catching of these small fish will eventually prevent the rebuilding process. Consequently, the quotas will remain at the existing all-time low levels, and the European Community will have little difficulty, in fact no other alternative, but to agree with the Northwest Atlantic Fisheries Organization quotas. These are the facts that explain the growing skepticism.

There are other conditions of the agree-

ment that preclude a successful rebuilding component. The observer program covers only 10 per cent of the foreign effort with observers appointed by, and reporting to, Community countries — guaranteed to be a useless exercise. The objection procedure used by the EC as a tool to flaunt conservation remains in effect with a promise to discuss a dispute mechanism when the objection clause is used again to override NAFO quotas. The flags of convenience (originally initiated by Spain and Portugal) remain a thorn in the side to any management regime simply because they catch over and above quotas, and are not responsible to any regulatory body such as NAFO.

If there is any hope for Newfoundland to contribute to its own well-being, and possibly to the national economy, fish stocks, which have been mismanaged for so many years, must be restored to optimal sustainable levels. We are simply asking for that process to be put in place in a meaningful manner. The agreement announced by the Canadian Minister of Fisheries is seriously short of this objective.

Stewart S. Payne (Most Rev.)

J. Faber MacDonald (Most Rev.)

Co-Chairmen, Newfoundland & Labrador Inter-Church Coalition for Fishing Communities, St. John's

Grand Banks fight a failure, fish group says

By John Spears
TORONTO STAR

HALIFAX — Canada's diplomatic campaign to stop foreign fishing vessels from plundering the Grand Banks has collapsed, says a coalition of fishing companies and unions.

It's time for the United Nations to give control of the Grand Banks to Canada until an effective way of regulating fishing can be set up, the coalition said yesterday.

Canada and more than a dozen other nations that fish the waters off Newfoundland have been meeting this week in Dartmouth, N.S., to discuss the state of the fishery.

Canada has been pushing for stricter limits on the number of fish foreign vessels can catch and for better ways of enforcement.

But Canada's proposals have been rejected, said Bruce Chap-

man, president of the Fisheries Association of Newfoundland and Labrador.

"All I can say is, it has been a total failure," Chapman told a news conference.

Chapman, who has been an observer at this week's session of the Northwest Atlantic Fisheries Organization (NAFO), would not say which countries have blocked Canada's proposals.

European Community nations, however, have been the worst overfishing culprits.

Unanimous consent is needed to get the rule changes Canada is seeking.

And the EC has consistently rejected many of the fishing quotas set by the fisheries organization and set its own, much higher quotas. Canada says the Europeans then even overfish their own quotas.

The fisheries organization is powerless to halt such overfishing. Its rules permit any member country that objects to the quotas to set its own.

Some teeth

Canada wanted some teeth put into the quota system at this week's meeting. Canada also was pushing for ships to carry independent fisheries observers to make sure catches are accurately measured.

Canadian officials won't comment until the meeting ends today. But Chapman said Canada's key proposals have been rejected and it's time to give up on the organization.

"We believe it's time for the United Nations to replace NAFO with something more effective," he said.

A U.N. conference on high seas fishing is planned for next June and Chapman says that would be an ideal place to get a new body established.

Until then, he said, the U.N. should ask Canada to take over the Grand Banks to make sure it doesn't get fished out.

EDITORIAL

Stop European overfishing

If we play it right, the Earth Summit in Brazil will be Canada's best chance to stop European fishermen from destroying our Atlantic fishery.

The Europeans aren't the only ones to blame for the sorry state of Atlantic fish stocks. Canadians overestimated northern cod stocks, and even when that became apparent, Ottawa still allowed larger catches than its own scientists recommended.

It doesn't help that there are twice as many seals now — and those 4.5-million seals aren't eating hamburgers. But

Fish stocks are dwindling

the Earth Summit is no place to talk of killing seals. Canada needs the environmentalists on side on this one.

The northern cod stock will only survive if an effective management structure is put in place. Canada can do that for the 95% of the continental shelf — where the cod swim — that lies within the 200-mile limit over which it has exclusive jurisdiction. But the cod sometimes concentrate in the areas outside the 200-mile limit — the nose and tail of the Grand Banks — and foreign fleets can clean up.

The North Atlantic Fisheries Organization, established in the late 1970s to regulate fishing outside the 200-mile limit, has been ineffective. The European Community has, since 1986, ignored NAFO quotas based on scientific evidence, and set its own, much higher quotas. Individual EC countries took that abuse one step further, and caught even more fish than stipulated in the EC quotas.

For example, the NAFO cod quota for the nose of the Banks has been zero since 1986. In 1991 Europe arbitrarily set its own quota of 26,000 tonnes: The actual catch was 42,000 tonnes.

The Europeans are undoing any effort Canada makes to regenerate those fish stocks. They might just destroy the stock forever, upsetting an entire ecosystem.

This is the message that must be put to other countries and powerful environmental groups at the Summit. The World Wide Fund for Nature is already on side: "WWF is extremely concerned about EC vessels plundering this important fishing area with no regard for the future."

The EC has to be brought to heel. Either it abides by NAFO recommendations or Canada should extend its exclusive control over the entire continental shelf.

This can't wait for international conferences. By the time something is decided in that kind of forum, it will be too late for hundreds of Newfoundland communities dependent on the fishery.

This doesn't mean Europeans would be forever banned from fishing the Grand Banks. Canada should rebuild the stocks, and when they can bear fishing effort it should assign foreign fleet quotas based on historic fishing patterns, but always within a prudent resource-management framework.



Net losses

The sorry state of our Atlantic fishery

By Silver Donald Cameron

AFTER A FEW rich seasons, the East Coast fishery is in deep trouble again — for the third time in 15 years. Like the ocean ecology that shapes it, the fishery is enormously complex, but the essence of this sudden new crisis is simple: our sophisticated fishing vessels are catching fish far more efficiently than anyone realized.

"Our technology has outstripped our science," says Dr. Leslie Harris, chairman of the federally appointed Review Panel on Northern Cod and president of Newfoundland's Memorial University. "We have underestimated our own capacity to find, to pursue, and to kill."

Trouble in the fishing industry is big trouble for Atlantic Canada, with its 65,000 fishermen and more than 40,000 fish plant workers. Fishing provides 10 percent of the region's jobs; as much as 25 percent in parts of Newfoundland. In total, it is a \$1.5-billion business.

The fishery takes place in four main areas: the Scotian Shelf, stretching from the mouth of the Bay of Fundy to the northern tip of Cape Breton Island; the Gulf of St. Lawrence; the Grand Banks of Newfoundland; and

the Labrador coast. The situation varies from one area to another, but nowhere in that vast expanse of ocean are the fish populations really healthy.

The two areas that dominate the news are the Scotian Shelf and the banks off Labrador — and the two are very different. The Scotian Shelf is within easy reach of inshore fishermen all along the coast of Nova Scotia and New Brunswick, and they fish a wide variety of species: cod, haddock, flounder, pollock, hake, herring, redfish, crab, scallop, lobster and others.

The Labrador fishery, by contrast, covers a vast area of the ocean east of the Labrador coast and north and east of Newfoundland, and its fishery is dominated by the stock known as northern cod. This stock is fished by offshore draggers, multimillion-dollar steel vessels about 160 feet (48 metres) in length, that tow a huge bag of net along the bottom that scoops up everything in its path. The northern cod stock normally produces almost half of Atlantic Canada's cod catch and a quarter of all the region's groundfish landings.

The same cod migrate to the shores

Get the corporations out of the fishing business

Multinationals' practices behind current East Coast crisis

BY ANTHONY DAVIS *Dk 13/89*

Prof. Davis is an economic anthropologist and specialist in fisheries research at St. Francis Xavier University.

ANTIGONISH, N.S.

IT'S THE FALL of 1983, and several high-powered men sit along a table, smiling and self-congratulatory. The premiers, federal and provincial fisheries ministers, fish company executives and their entourages have been called together by Michael Kirby, head of a federal task force examining the industry, to announce the long-awaited "restructuring" of the Atlantic fisheries.

The measures they outline include committing hundreds of millions of taxpayers' dollars in direct support and guarantees to the large fish companies. In addition, the federal government has promised the corporations high-volume, stable access to marine resources through an enterprise-allocation scheme. Everything is designed to put the big fishing companies back on the road to prosperity.

These assurances were made in a Nova Scotia town called Port Hawkesbury. Forty miles away and a little over six years later, neighboring Canso learned that its National Sea Products fish plant and fishing operations, the heart of most residents' livelihoods, will be closed permanently in April.

What has brought this latest and most severe of Atlantic Canada's fisheries crises to pass? Well, the people at that table in 1983 or their successors will roll out the usual litany of causes. You will hear about foreign over-fishing, downturns in the U.S. market, too many fishers chasing too few fish, and over-capacity.

There is some truth to these points, but it's what you will not hear that is most important. You will not hear about a federal management strategy that has turned many fishers into pirates, rapacious in exploiting resources as they struggle to service the costs of their enterprises.

You will not hear much about the world's largest, privately owned, multinational fish company divesting itself of "fat" in Nova Scotia (plants in Halifax, Digby,

gutted fish stocks and brought the industry to its knees.

There has been little, if any, government intervention directed at protecting ocean habitats from the physical destruction wrought by fishing practices. The current Atlantic fisheries crisis is largely an outcome of such factors.

Well, it's easy to call the game after the last ball has been thrown. What is to be done?

Enough public money has been wasted on corporations. It is time for elected officials to muster some courage and invest public support in the communities that depend on marine resources for their livelihoods. A number of programs should be developed and implemented immediately.

□ Fish quotas associated with the plants being closed must be left with those plants.

□ Fish plant workers, fishers and members of their communities must be given the opportunity and the means to assume ownership and control of their plant and its quota. Failing this, local entrepreneurs must be given a similar chance.

□ These communities must be provided with the management, technical and educational support essential to assuming control and striving for success.

□ The corporate sector has lost, through its irresponsible actions, the privilege to participate in the fisheries. Companies should be appropriated and broken up for distribution to the communities within which the remaining plants operate.

□ Mass, non-selective harvesting practices must be reduced severely, if not eliminated. The fisheries are renewable food resources that, if given the time and opportunity, will regenerate to

levels allowing quality livelihoods for every fishing community.

□ Fishers must be able to manage their own industry and livelihood. They, not government bureaucrats and regulators, have the most riding on effective management. This should be their responsibility, and they must sleep in the bed they make. If they fail to harvest responsibly, they, not the taxpayer, must bear the consequences.

THESE ARE but a few of the measures that would turn the industry around by placing it and its future squarely in the hands of those most dependent upon it.

So far the options presented by the federal government offer little but the usual short-term medication. For instance, manpower-retraining programs have been promised. But what can an unemployed fish-plant worker be retrained to do in a fisheries-dependent community stripped of employment?

Only so many of them can operate or work in tourist businesses, such as whale-watching charters, bed-and-breakfasts and craft shops. Only so many can make a living entertaining visitors with singin', fiddlin' and yarn-tellin'.

Most of these communities have few prospects as investment sites for the likes of computer-assembly companies. Most likely, many of those to be retrained will be expected to choose between employment and prosperity in a city or unemployment and poverty in their home towns.

This is a strategy that blames victims and denies small communities vitality and a future. Surely the time has come to find the courage to try another approach. After all, it just might work.



